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F. FIEBEGER.
STOVE AND FURNACE.
APPLICATION FILED NOV. 14, 1906.

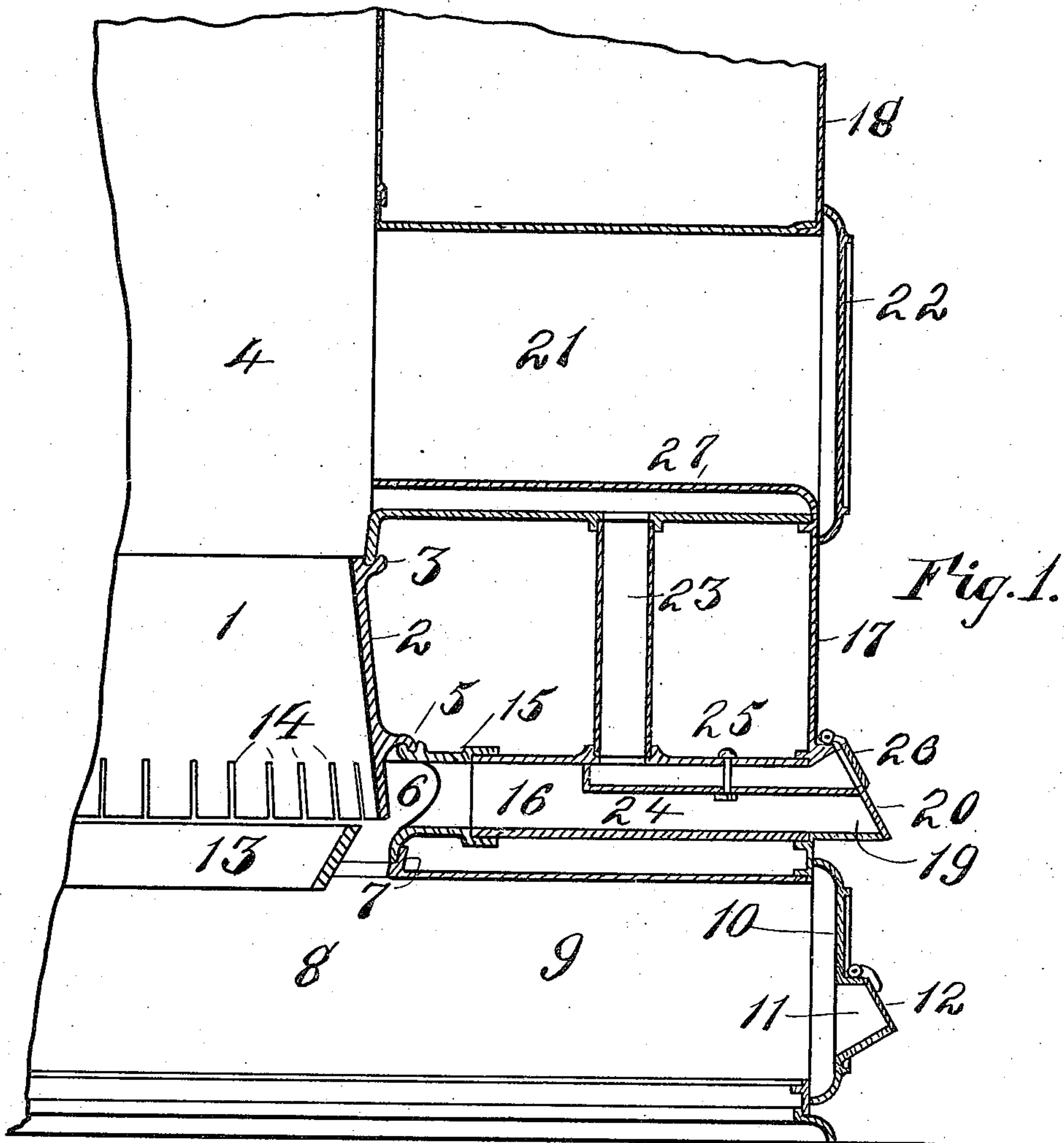
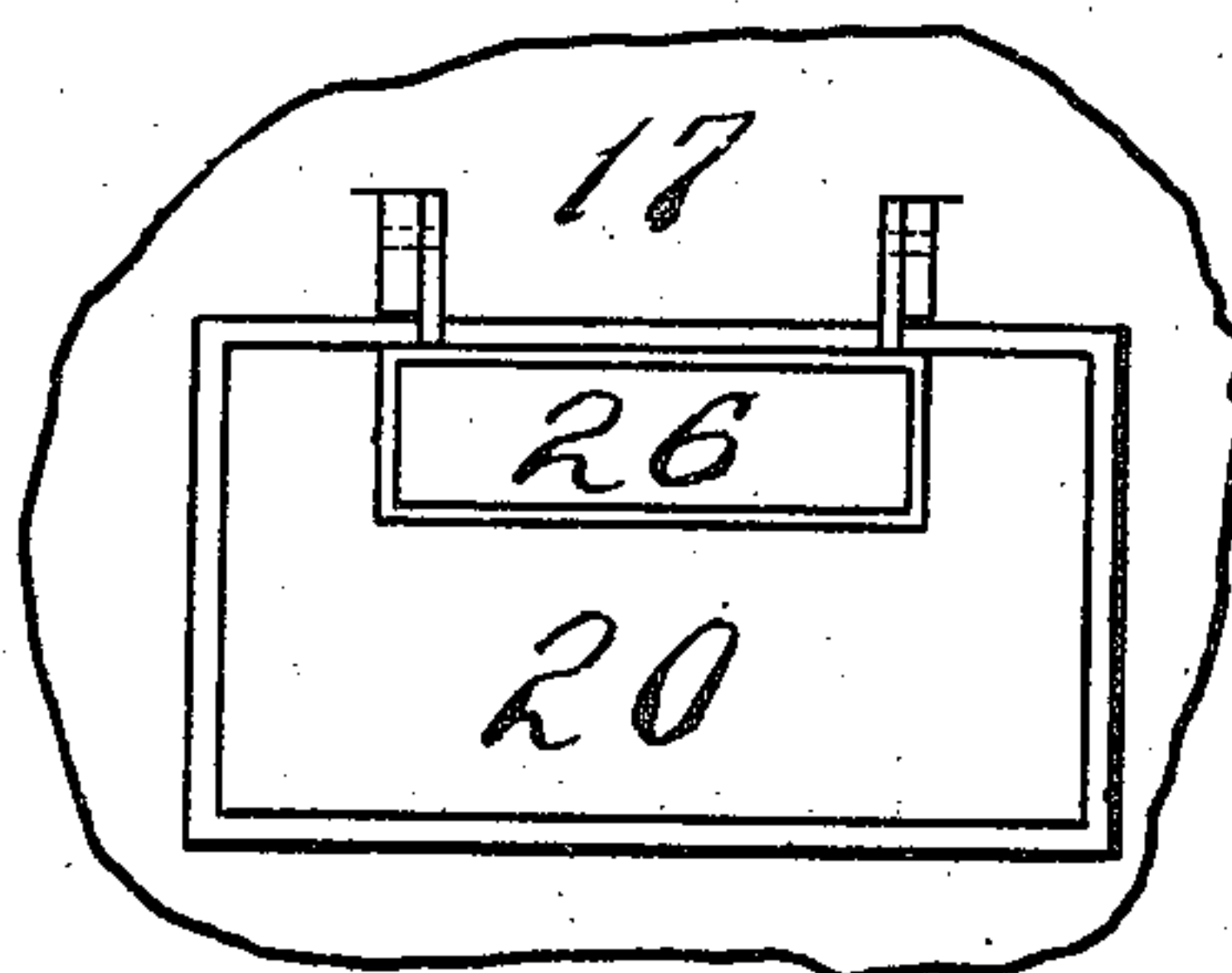


Fig. 2.



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UNITED STATES PATENT OFFICE.

FRANK FIEBEGER, OF AKRON, OHIO.

STOVE AND FURNACE.

No. 844,342.

Specification of Letters Patent.

Patented Feb. 19, 1907.

Application filed November 14, 1906. Serial No. 343,419.

To all whom it may concern:

Be it known that I, FRANK FIEBEGER, a citizen of the United States, residing at Akron, in the county of Summit and State of Ohio, have invented new and useful Improvements in Stoves and Furnaces, of which the following is a specification.

This invention relates to improvements in stoves and furnaces, and primarily relates to improvements in that type of heating devices described in United States Letters Patent granted to Hiram J. Hough November 1, 1904, No. 773,744.

The object of this invention is to provide improved means for controlling the distribution of air to the combustion-chamber of the device in order that the mingling of the oxygen of the air with the gases generated by the fuel may cause as perfect combustion thereof as possible.

With the foregoing and other objects in view the invention consists of the novel construction, combination, and arrangement of parts constituting the invention, to be hereinafter referred to, and illustrated in the accompanying drawings, which form a part of this specification, in which is shown the preferred embodiment of the invention; but it is to be understood that changes, variations, and modifications can be resorted to which come within the scope of the claims hereunto appended.

In the drawings, in which similar reference-numerals indicate like parts in the different figures, Figure 1 is a vertical sectional view of the heater portion of a furnace, together with so much of the connected mechanism as will illustrate this invention; and Fig. 2 is a side elevation of one of the doors used in controlling the inlet of air to the combustion-chamber.

In the drawings the reference-numeral 1 designates a portion of the fire-pot of the device, which is of the general type described in Letters Patent No. 773,744, heretofore referred to, and consists of a main body portion 2, shaped in the form of a frustum of a cone provided with an upper portion 3, having means on which is seated the fuel-section 4 of the combustion-chamber. The fire-pot 1 is further provided with an outwardly-extending beading or flange 5, which is adapted to rest on an annularly-formed member 6, which in turn rests on a seat 7 in the upper portion of the ash-pit 8 of the device.

The ash-pit 8 is provided with an inlet 9 of the ordinary type, closed by a door 10, having an opening 11, closed by a small door 12. Sustained by any suitable means is a grate 13 of any ordinary construction; but as this grate 13 does not constitute an essential portion of this invention a further description thereof is deemed unnecessary. The lower portion of the fire-pot 1 is provided with a plurality of upwardly-extending slots 14, by which air is admitted to the fuel to secure better combustion thereof. The air which is designed to pass through the slots 14 is fed thereto from within the interior of the annular member 6, which surrounds the lower portion of the fire-pot 1, and is admitted to said member 6 by means of a duct constructed as follows:

Projecting from the member 6 and preferably integral therewith is a hollow socket member 15, into which is secured a pipe 16, which extends to and is preferably supported by the front plate 17 of the furnace. This front plate 17 constitutes a portion of the outer casing 18 of the furnace and closes a suitably-located opening therein. This front plate is provided with an opening 19, registering with the end of the duct 16, closed by a gate 20, which is inclined at such an angle as to normally remain closed. The fuel-chamber of the heater portion of this device is provided with a pouch 21, through which fuel is fed to the combustion-chamber, and this pouch is closed by an ordinary door 22. Thus far the description given relates to the ordinary type of furnaces constructed in accordance with Letters Patent No. 773,744.

It will be seen from the foregoing description that any air admitted to the combustion-chamber of the device must be admitted through the gate 12, the door 10, or the door 20, in which case the air reaches mainly only the lower portions of the fuel, and as it has been found desirable to admit air into the combustion-chamber at a higher point than is permitted by these hereinbefore-referred-to means the following device is employed for permitting an easily-controlled amount of oxygen to the combustion-chamber at a point approximately adjacent the upper portion of the fuel contained therein. This improvement for admitting oxygen at a higher point is as follows: Extending from the inlet-tube 16 to the pouch 21 is an upwardly-extending pipe 23 in open communication with

both these chambers. Suitably mounted in the inlet-tube 16 is a septum or diaphragm 24, retained in position by means of bolts 25 and which extends from the door 20 to a point slightly beyond the location of the opening which communicates with the upwardly-extending pipe 23. This diaphragm 24 extends outwardly sufficiently far to approximately contact with the door 20, so that when it is closed it closes not only the air-space inclosed by the diaphragm 24, but also the main portion of the inlet-pipe 16, which leads to the interior of the member 6.

In order to permit air to be supplied independently to the space inclosed by the diaphragm 24 and from thence pass upward through the pipe 23, I place on the door 20 an auxiliary or supplemental door 26, which is capable of being independently manipulated without opening the door 20 and is of a size approximating the opening bounded by the diaphragm 24. From this it will be seen that air may be admitted to the space bounded by the diaphragm 24 without allowing it to enter the main portion of the air-tube 16 at all, or by opening the door 20 both air-passages contained in the main tube 16 may be opened for the passage of air. As the upwardly-extending pipe 23 communicates with an opening in the floor of the pouch 21, there would be a constant liability that coal or fuel fed to the heater portion of this device might unintentionally lodge in this pipe 23 and interfere with its proper operation, and hence to avoid the possibility of this taking place I place in the pouch 21 a false bottom 27, which extends laterally across the entire pouch and from the forward or charging end thereof to the point where the pouch 21 communicates with the combustion-chamber of the device. This bottom 27 is separated from the true bottom of the pouch 21 a sufficient distance to form between them an air-passage for the passage of air from the pipe 23 into the combustion-chamber of the device, and it will be seen by referring to the drawings that the point where the air will escape from this passage is on the level with or near the top of the fuel contained in the combustion-chamber. From this description it will be seen that air may be fed to the top of the burning fuel or substantially to the top and bottom portions thereof and be at all times under perfect control and regulation by the operator of the device.

What I claim, and desire to secure by Letters Patent, is—

1. A heating device of the type described, comprising in combination a heater, a fuel-pouch extending to said heater, an annular air-duct surrounding said heater, an air-inlet independent of the ash-pit of the device extending to said annular member, an air-passage extending from said air-inlet to said

fuel-pouch and in open communication with both.

2. A heating device of the class described, comprising in combination a heater, a fuel-pouch extending to said heater, an annular air-duct surrounding said heater, a divided air-inlet one of the portions of which extends to said annular member, and an air-passage extending from one portion of said divided air-inlet to said fuel-pouch.

3. A heating device of the type described, comprising in combination a heater, a fuel-pouch extending to said heater, an annular air-duct surrounding said heater, an air-inlet a portion of which extends to said annular member, an air-passage extending from the other portion of said air-inlet to said fuel-pouch, and means to control the admission of air to both portions of said divided air-inlet.

4. A heating device of the type described, comprising in combination a heater, a fuel-pouch extending to said heater, an annular air-duct surrounding said heater, an air-inlet a portion of which is divided into two air-passages one of which extends to said annular member, an air-passage extending from the other portion of said air-inlet to said fuel-pouch, and means to admit air separately to one of the air-passages in said air-inlet.

5. A heating device of the class described, comprising in combination a heater, a divided fuel-pouch extending to said heater, an annular air-duct surrounding said heater, an air-inlet independent of the ash-pit of the device extending to said annular air-duct and an air-passage leading from said air-inlet to one of the portions of said fuel-pouch.

6. A heating device of the type described, comprising in combination a heater, a fuel-pouch extending to said heater, an annular air-duct surrounding said heater, an air-inlet independent of the ash-pit of the device extending to said annular member, an air-passage extending from said air-inlet to said fuel-pouch, and means to prevent solid matter from lodging in said air-passage.

7. A heating device of the type described, comprising in combination a heater, a fuel-pouch divided into two portions extending to said heater, an annular air-duct surrounding said heater, a divided air-inlet containing two air-passages, one of which extends to said annular member, and an air-passage extending from the other air-passage in said air-inlet to one of the portions of said divided fuel-pouch.

8. A heating device of the type described, comprising in combination a heater, a fuel-pouch extending to said heater, means in said fuel-pouch to form an air-passage therein, an annular air-duct surrounding said heater, an air-inlet divided into two air-passages, one of which extends to said annular

member, an air-passage extending from one
of the air-passages in said air-inlet to the
air-passage in said fuel-pouch, and means to
control the admission of air to said air-inlet
5 whereby the admission of air to said annular
member and the air-passage in said fuel-
pouch may be controlled.

In testimony whereof I have hereunto set
my hand in presence of two subscribing wit-
nesses.

FRANK FIEBEGGER.

Witnesses:

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NELLIE PATTERSON.